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UNITED STATES
 ENVIRONMENTAL PROTECTION AGENCY
 REGION 10
 IDAHO OPERATIONS OFFICE
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IN THE MATTER OF:
 BLACKBIRD MINE
 Lemhi County, Idaho
 NORANDA MINING INC.
 Respondent

ADMINISTRATIVE ORDER ON
 CONSENT FOR REMOVAL RESPONSE
 ACTIVITIES
 U.S. EPA Region
 Docket No. 1093-07-04-106
 Proceeding Under Sections
 106(a) and 122 of the
 Comprehensive Environmental
 Response, Compensation, and
 Liability Act, as amended, 42
 U.S.C. §§9606(a) and 9622

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1 I. JURISDICTION AND GENERAL PROVISIONS

2 1. This Order is issued pursuant to the authority vested in
3 the President of the United States by sections 106(a) and 122 of
4 the Comprehensive Environmental Response, Compensation, and
5 Liability Act of 1980, 42 U.S.C. §§ 9606(a) and 9622, as amended
6 ("CERCLA"), and delegated to the Administrator of the United
7 States Environmental Protection Agency ("EPA") by Executive Order
8 No. 12580, January 23, 1987, 52 Federal Register 2923, and further
9 delegated to the Regional Administrators by EPA Delegation Nos.
10 14-14-A and 14-14-B. This authority is conferred on the Branch
11 Chief of the EPA Region 10 Superfund Investigation/Response
12 Branch, by Regional Redelegation Order signed by the Regional
13 Administrator.

14 2. This Administrative Order on Consent (Order) is entered
15 into voluntarily by the EPA and Noranda Mining Inc. ("Noranda" or
16 "Respondent"). This Order provides for the performance of
17 emergency removal actions by Respondent and the reimbursement of
18 response costs incurred by the United States in connection with
19 the property located at the Blackbird Mine, located in Lemhi
20 County, Idaho (the "Site"). This Order requires the Respondent to
21 conduct emergency removal actions described herein to prevent an
22 imminent and substantial endangerment to the public health,
23 welfare or the environment that may be presented by the actual or
24 threatened release of hazardous substances at or from the Site.

25 3. EPA has notified the State of Idaho (the "State") of this
26 action pursuant to section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

27 4. Respondent's participation in this Order shall not
28

1 constitute or be construed as an admission of liability or of
2 EPA's findings or determinations contained in this Order.
3 Respondent agrees to comply with and be bound by the terms of this
4 Order. Respondent further agree that it will not contest the
5 basis or validity of this Order or its terms.

6 5. This Order is not to be construed and will not be
7 construed to any extent or for any purposes, however and whenever
8 arising, as an admission of liability or violation of any private
9 contract or instrument or of any local, state or federal
10 ordinance, rule, regulation or statute, directly or indirectly, on
11 the part of Respondent. Nor shall this Order be admitted into
12 evidence or used in any way, directly or indirectly, in any
13 judicial or administrative proceeding or in any other manner
14 against Respondent for any purpose other than in further
15 proceedings by the parties hereto to enforce the terms of this
16 Order, provided, however, that nothing herein shall preclude any
17 party from using the Order or the fact of its entry in defense of
18 any suit or in any proceeding against any other party for the
19 recovery of costs or for contribution of costs expended in
20 complying with, or implementing the work provided for in this
21 Order.

22 II. PARTIES BOUND

23 6. This Order applies to and is binding upon EPA, and upon
24 Respondent and its directors, officers, employees, agents,
25 receivers, trustees, successors and assigns. Any change in
26 ownership or corporate status of Respondent including, but not
27 limited to, any transfer of assets or real or personal property
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1 shall in no way alter Respondent's responsibilities under this
2 Order.

3 7. Respondent shall ensure that its contractors,
4 subcontractors, and representatives receive a copy of this Order
5 and comply with this Order. Respondent shall be responsible for
6 any noncompliance by such persons.

7 **III. FINDINGS OF FACT**

8 8. The Blackbird Mine is an inactive mine located in Lemhi
9 County, Idaho, approximately twenty (20) miles west of Salmon,
10 Idaho. The unincorporated town of Cobalt is located approximately
11 ten (10) miles downstream on Panther Creek. The Blackbird Mine
12 consists of approximately 830 acres of patented private mining
13 claims, and is situated within 10,000 acres of unpatented mining
14 claims in the Cobalt District of the Salmon Nation Forest.

15 9. The Blackbird Mine is situated at the headwaters of the
16 Blackbird Creek and Bucktail Creek. The West Fork of Blackbird
17 Creek carries surface water that drains from approximately 5,100
18 acres of forested and mountainous terrain. Surface water from the
19 West Fork of Blackbird Creek joins the main stem of Blackbird
20 Creek approximately 100 feet downstream of the tailings
21 impoundment dam. Blackbird Creek drains into Panther Creek, which
22 flows northward into the Salmon River.

23 10. The Blackbird Mining Company (BMC) is the current owner
24 of patented and unpatented mining claims at the Blackbird Mine.
25 BMC is a limited partnership. Noranda Mining Inc. (Noranda) is
26 the General Partner of BMC. M.A. Hanna Company is the Limited
27 Partner of BMC.
28

11. The Blackbird Mine was actively mined for gold, copper and cobalt by other owners and operators between 1893 and 1967. In the period 1950 - 1952, other parties constructed a dam on the West Fork of Blackbird Creek, near the confluence with Blackbird Creek, as a mine tailings impoundment structure. The dam, constructed of earthen materials is approximately 150 feet in height and 600 feet in length. The tailings impoundment is approximately 1250 feet long, and covers approximately nine (9) acres. The area in the vicinity of the tailings impoundment structure is a high risk zone for seismic activity, with moderate earthquakes of less than Richter magnitude 4 occurring annually, and larger more significant earthquakes greater than Richter magnitude 5 occurring frequently.

12. Between 1952 and 1967, approximately 2,000,000 tons of ore tailings from the Blackbird Mine operations were deposited in the tailings impoundment structure. The tailings deposited behind the tailings dam contain hazardous substances, pollutants and contaminants, including arsenic, cobalt, copper, silver, and zinc. Prior to placement of tailings in the impoundment, a culvert of 48 inch and 42 inch reinforced concrete pipes was installed on the floor of the West Fork of Blackbird Creek to channel surface water flows through the tailings impoundment.

13. The hazardous substances in the tailings are known or suspected to cause adverse human and environmental health effects. Of particular concern are arsenic, cobalt, copper, and iron. Field and laboratory studies have demonstrated exposure to these heavy metals causes fish kill, reductions in or elimination of the

1 spawning runs of anadromous fish, and other adverse effects on
2 aquatic organisms.

3 14. Noranda conducted a video inspection of the culvert that
4 passes under the tailings impoundment structure in March 1993.
5 The video revealed that the structure of the culvert pipes have
6 distorted and have large cracks and broken sections along the top,
7 bottom and sides. The video inspection also showed that the
8 surface water flowing through the culvert was in direct contact
9 with tailings. After the video inspection, Noranda took steps to
10 repair temporarily the failed pipes by perimeter grouting in the
11 voids forming around the failed portions of the culvert.

12 15. The culvert pipes, in their present condition, can carry
13 approximately 120 cubic feet per second (cfs) of water flow, which
14 is the amount of runoff that could flow through the West Fork of
15 Blackbird Creek in a fourteen-year, 24-hour duration storm event.
16 However, the culvert is of insufficient capacity to carry surface
17 water flow that would result from a more significant storm event.
18 For example, a storm of the magnitude of a 100-year, 24-hour storm
19 event would produce a peak flow of 240 cfs, which is approximately
20 twice the present capacity of the culvert.

21 16. Under current conditions, the tailings impoundment dam
22 could fail and the tailings could be released into Blackbird Creek
23 and further downstream. The present culvert could fail and cause
24 excess water to accumulate behind the tailings impoundment
25 structure under several different circumstances, including: (1) A
26 storm event causes runoff and stream flow that exceeds the
27 capacity of the culvert; (2) the culvert becomes blocked because
28

one or more sections of pipe collapse as the result of physical deterioration or a seismic event; or (3) a storm event causes debris to plug or obstruct the culvert inlet. Surface water accumulating behind the tailings impoundment structure could flow across the tailings and over the top of the earthen dam. The earthen dam and the tailings could erode rapidly into Blackbird Creek and then Panther Creek. With the volume of stored water feeding the surge in such circumstances, the tailings could be expected to reach the Salmon River.

17. EPA proposed to add the Blackbird Mine site to the National Priorities List, pursuant to Section 105(a)(8) of CERCLA, 42 U.S.C. § 9605(a)(8), on May 10, 1993, 58 Federal Register 27507.

IV. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, and the Administrative Record supporting these removal actions, EPA determines that:

18. The Blackbird Mine Site is a "facility" as defined by section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

19. Each substance identified in the Findings of Fact above is a "hazardous substance" as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

20. Respondent is a "person" as defined by section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

21. Respondent is the "owner" and "operator" of the facility, as defined by section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of section 107(a)(1) of CERCLA, 42 U.S.C. §

1 9607(a)(1).

2 22. The conditions described in the Findings of Fact above
3 constitute an actual or threatened "release" into the "environment"
4 as defined by sections 101(8) and (22) of CERCLA, 42 U.S.C.
5 §§ 9601(8) and (22).

6 23. The conditions present at the facility constitute a threat
7 to public health, welfare, or the environment based upon the factors
8 set forth in section 300.415(b)(2) of the NCP.

9 24. The actual or threatened release of hazardous substances
10 from the Site may present an imminent and substantial endangerment
11 to the public health, welfare, or the environment within the meaning
12 of section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

13 25. The emergency removal actions required by this Order are
14 necessary to protect the public health, welfare, or the environment,
15 and if conducted in compliance with this Order, the emergency
16 removal, including the planning and investigations and repair of the
17 culvert conducted by Respondent in 1993 prior to the date of this
18 Order to prepare for this work, will be consistent with the NCP and
19 CERCLA. The surface diversion to be constructed in this emergency
20 removal action is an interim measure, and EPA has made no
21 determination as to the long-term, permanent solution for this Site.

22

23 V. ORDER

24 Based upon the foregoing Findings of Fact, Conclusions of Law,
25 Determinations, and the Administrative Record for this Site, it is
26 hereby ordered and agreed that Respondent shall comply with the
27 following provisions, including but not limited to all attachments

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1 to this Order, all documents incorporated by reference into this
2 Order, and all schedules and deadlines in this Order, attached to
3 this Order, or incorporated by reference into this Order, and
4 perform the following actions. The periods for performance of
5 actions required under this Order shall be in calendar days, unless
6 otherwise described:

7 26. Designation of Contractor, Project Coordinator, and On-Scene
8 Coordinator.

9 a. Respondent shall perform the work itself or retain
10 contractors to implement this removal action. Respondent shall
11 notify EPA of Respondent's qualifications or the name(s) and
12 qualification(s) of such contractor(s) within fourteen (14) days of
13 the effective date of this Order. Respondent shall also notify EPA
14 of the name(s) and qualification(s) of any other contractor(s) or
15 subcontractor(s) retained to perform work under this Order at least
16 five (5) business days prior to commencement of such work. EPA
17 retains the right to disapprove of any, or all, of the contractors
18 and/or subcontractors retained by the Respondent. If EPA
19 disapproves of a selected contractor, Respondent shall retain a
20 different contractor within fifteen business days following EPA's
21 disapproval and shall notify EPA of that contractor's name and
22 qualifications within five (5) business days of EPA's disapproval.

23 b. Respondent has designated Joseph Scheuering as Project
24 Coordinator who shall be responsible for administration of all
25 Respondent's actions required by this Order. Respondent has
26 designated Ray Hathorne as Alternative Project Coordinator who
27 shall be responsible for administration of all Respondent's actions
28

1 required by this Order when the Project Coordinator is not
2 available. To the greatest extent possible, the Project Coordinator
3 or the Alternative Project Coordinator shall be present on-site or
4 readily available during site work under this Order. Receipt by
5 Respondent's Project Coordinator of any notice or communication from
6 EPA relating to this Order shall constitute receipt by Respondent.

7 c. The EPA has designated William Freutel of the Idaho
8 Operations Office, EPA Region 10, as its On-Scene Coordinator (OSC),
9 who can be reached by telephone at (208) 334-1475. Respondent shall
10 direct all submissions required by this Order to the OSC at 442 W.
11 Washington Street, Boise, Idaho 83702. EPA and Respondent shall
12 have the right to change their designated OSC or Project
13 Coordinator. EPA shall notify Respondent, and Respondent shall
14 notify EPA, seven (7) calendar days before such a change is made.
15 The initial notification may be orally made but it shall be promptly
16 followed by a written notice. (see Section VI in this Order -
17 Authority of the EPA On-scene Coordinator).

18 27. Work to Be Performed. Respondent shall perform, at a
19 minimum, the response activities set forth in the Statement of Work
20 (SOW), attached as Appendix A to this Order. The work described in
21 the SOW to be performed under this Order will be to (1) construct a
22 surface diversion for the West Fork of Blackbird Creek, including a
23 groundwater cutoff and channel liner, according to the drawings and
24 the schedule included with the SOW for completion of the surface
25 diversion before the Spring 1994 runoff, (2) plug the existing
26 culvert after the surface diversion is constructed, and (3) monitor
27 and maintain the surface diversion.

1 28. Work Plan and Implementation. Within fourteen (14) days
2 after Respondent notifies EPA of the contractor's name and
3 qualifications pursuant to Paragraph 26.a., Respondent(s) shall
4 submit to EPA for approval a draft Work Plan for performing the
5 emergency removal actions set forth in the SOW. The draft Work Plan
6 shall provide a description of, and an expeditious schedule for, the
7 activities required by this Order.

8 EPA may approve, disapprove, require revisions to, or modify
9 the draft Work Plan for work elements set forth in Paragraph 27 and
10 the SOW. If EPA requires revisions, Respondent shall submit a
11 revised draft Work Plan within fourteen (14) days of receipt of
12 EPA's notification in writing of the required revisions. Respondent
13 shall implement the Work Plan as finally approved in writing by EPA
14 in accordance with the schedule approved by EPA. Once approved, or
15 approved with modifications, the Work Plan, the schedule, and any
16 subsequent modifications shall be fully enforceable under this
17 Order. After the effective date of this Order, Respondent shall
18 notify EPA at least 48 hours prior to performing any on-site work
19 pursuant to the EPA-approved Work Plan. Respondent shall not
20 commence or undertake any removal actions at the site without prior
21 EPA approval.

22 a. Health and Safety Plan. Within fourteen (14) days after
23 the effective date of this Order, the Respondent shall submit for
24 EPA review and comment a plan that ensures the protection of the
25 public health and safety during performance of on-site work under
26 this Order. This plan shall be prepared in accordance with EPA's
27 Standard Operating Safety Guide, dated November 1984, and updated
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1 July 1988. In addition, the plan shall comply with applicable
2 Occupational Safety and Health Administration (OSHA) regulations
3 found at 29 CFR Part 1910, dated March 6, 1989. If EPA determines
4 that it is appropriate, the plan shall also include contingency
5 planning. Respondent shall incorporate all changes to the plan
6 recommended by EPA, and implement the plan during the pendency of
7 the removal action.

8 b. Quality Assurance and Sampling. If sampling and analyses
9 are performed pursuant to this Order, it shall conform to EPA
10 direction, approval, and guidance regarding sampling, quality
11 assurance/quality control (QA/QC), data validation, and chain of
12 custody procedures. Respondent shall ensure that the laboratory
13 used to perform the analyses participates in a QA/QC program that
14 complies with the appropriate EPA guidance. Respondent shall follow
15 the following documents as appropriate as guidance for QA/QC and
16 sampling: "Quality Assurance/Quality Control Guidance for Removal
17 Activities: Sampling QA/QC Plan and Data Validation Procedures,"
18 OSWER Directive Number 9360.4-01; "Environmental Response Team
19 Standard Operating Procedures," OSWER Directive Numbers 9360.4-02
20 through 9360.4-08.

21 i. Upon request by EPA, Respondent shall have such a
22 laboratory analyze samples submitted by EPA for quality-assurance
23 monitoring. Respondent shall provide to EPA the quality
24 assurance/quality control procedures followed by all sampling teams
25 and laboratories performing data collection and/or analysis.

26 ii. Upon request by EPA, Respondent shall allow EPA or
27 its authorized representatives to take split and/or duplicate
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1 samples of any samples collected by Respondent while performing work
2 under this Order. Respondent shall notify EPA not less than seven
3 (7) days in advance of any sample collection activity. EPA shall
4 have the right to take any additional samples that it deems
5 necessary.

6 c. Post-Removal Site Control. Respondent shall monitor and
7 maintain the surface diversion and stream flow as set forth in the
8 SOW and the approved Work Plan, and as necessary to maintain the
9 effectiveness and integrity of the emergency removal action. To the
10 extent practicable, Respondent shall provide for such post-removal
11 site control consistent with section 300.415(k) of the NCP and OSWER
12 Directive 9360.2-02.

13 d. Reporting. Respondent shall submit a written progress
14 report to EPA concerning activities undertaken pursuant to this
15 Order every fourteenth (14th) day after the date of receipt of EPA's
16 approval of the Work Plan until construction of the surface
17 diversion is completed, and every thirty (30) days thereafter until
18 termination of this Order, unless otherwise directed by the OSC in
19 writing. These reports shall describe all significant developments
20 during the preceding period, including the work performed and any
21 problems encountered, analytical data received during the reporting
22 period, and the developments anticipated during the next reporting
23 period, including a schedule of work to be performed, anticipated
24 problems, and planned resolutions of past or anticipated problems.

25 e. Any Respondent and Successor(s) in title shall, at least 30
26 days prior to the conveyance of any interest in real property at the
27 site, give written notice of this Order to the transferee and
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1 written notice to EPA [and the State] of the proposed conveyance,
2 including the name and address of the transferee. The party
3 conveying such an interest shall require that the transferee comply
4 with Paragraph 29 - Access to Property and Information.

5 f. Final Report. Within ninety (90) days after completion of
6 all removal actions required under this Order, Respondent shall
7 submit for EPA review and approval a final report summarizing the
8 actions taken to comply with this Order. The final report shall
9 conform, at a minimum, with the requirements set forth in section
10 300.165 of the NCP entitled "OSC Reports" and with OSWER Directive
11 No. 9360.3-03 - "Removal Response Reporting". The final report
12 shall include a good faith estimate of total costs or statement of
13 actual costs incurred in complying with the Order, a listing of
14 quantities and types of materials removed, a discussion of removal
15 and disposal options considered for those materials, a listing of
16 the ultimate destination of those materials, a presentation of the
17 analytical results of all sampling and analyses performed, and
18 accompanying appendices containing all relevant documentation
19 generated during the removal action (e.g., manifests, invoices,
20 bills, contracts, and permits). The final report shall also include
21 the following certification signed by a person who supervised or
22 directed the preparation of that report:

23 Under penalty of law, I certify that based on personal
24 knowledge and appropriate inquiries of all relevant persons
25 involved in the preparation of the report, the information
26 submitted is true, accurate, and complete. I am aware that
27 there are significant penalties for submitting false
28 information, including the possibility of fine and
imprisonment for knowing violations.

1 29. Access to Property and Information. Respondent shall
2 provide and/or obtain access to the Site and appropriate off-site
3 areas, and provide access to all records and documentation related
4 to the conditions at the Site and the activities conducted pursuant
5 to this Order. Such access shall be provided to EPA, U.S. Forest
6 Service, National Oceanic and Atmospheric Administration, and State
7 of Idaho employees, contractors, agents, consultants, designees, and
8 representatives. These individuals shall be permitted to move
9 freely at the Site and appropriate off-site areas in order to
10 conduct activities which EPA determines to be necessary. All
11 persons with access to the Site under this Paragraph shall comply
12 with all health and safety plans accepted by EPA pursuant to
13 Paragraph 28.a. Nothing in this Order either supersedes the Case
14 Management Order entered by the United States District Court for the
15 District of Idaho in State of Idaho, et al. v. M.A. Hanna Company,
16 et al., Civ. No. 83-4179 (D. Idaho), or will supersede any future
17 order in that action or in United States of America v. Blackbird
18 Mining Company Limited Partnership, et al., Case No. CV 93-235-E-HLR
19 (D. Idaho). Respondent shall submit to EPA, upon receipt, the
20 results of all sampling or tests and all other data generated by
21 Respondent or their contractor(s), or on the Respondent's behalf
22 during implementation of this Order. EPA will provide Respondent
23 copies of all sampling tests and other data generated by EPA or its
24 authorized representatives during implementation of this Order.

25 30. Where work under this Order is to be performed in areas
26 owned by or in possession of someone other than Respondent,
27 Respondent shall use its best efforts to obtain all necessary access
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1 | agreements within thirty (30) days after the effective date of this
2 | Order, or as otherwise specified in writing by the OSC. Respondent
3 | shall immediately notify EPA if after using its best efforts it is
4 | unable to obtain such agreements. Respondent shall describe in
5 | writing its efforts to obtain access. EPA may then assist
6 | Respondent in gaining access, to the extent necessary to effectuate
7 | the response activities described herein, using such means as EPA
8 | deems appropriate.

9 | 31. Record Retention, Documentation, Availability of
10 | Information. Respondent shall preserve all documents and
11 | information relating to work performed under this Order, or relating
12 | to the hazardous substances found on or released from the Site, for
13 | ten years following completion of the removal actions required by
14 | this Order. At the end of this ten year period and 30 days before
15 | any document or information is destroyed, Respondent shall notify
16 | EPA that such documents and information are available to EPA for
17 | inspection, and upon request, shall provide the originals or copies
18 | of such documents and information to EPA. In addition, Respondent
19 | shall provide documents and information retained under this section
20 | at any time before expiration of the ten year period at the written
21 | request of EPA.

22 | 32. Respondent may assert a business confidentiality claim
23 | pursuant to 40 CFR § 2.203(b) with respect to part or all of any
24 | information submitted to EPA pursuant to this Order, provided such
25 | claim is allowed by section 104(e)(7) of CERCLA, 42 U.S.C. §
26 | 9604(e)(7). Analytical and other data specified in section
27 | 104(e)(7)(F) of CERCLA shall not be claimed as confidential by the
28 |

1 Respondent. EPA shall only disclose information covered by a
2 business confidentiality claim to the extent permitted by, and by
3 means of the procedures set forth at, 40 CFR Part 2, Subpart B. If
4 no such claim accompanies the information when it is received by
5 EPA, EPA may make it available to the public without further notice
6 to Respondent.

7 33. Off-Site Shipments. If any hazardous substances, pollutants
8 or contaminants are removed off-site pursuant to this Order for
9 treatment, storage or disposal, such hazardous substances,
10 pollutants or contaminants shall be treated, stored, or disposed of
11 at a facility in compliance, as determined by EPA, with the EPA
12 Revised "Off-Site Policy," OSWER Directive Number 9834.11, November
13 13, 1987. Excavation and movement of tailings, soils, and other
14 earthen materials at the tailings impoundment site on the West Fork
15 of Blackbird Creek shall not constitute off-site disposal under this
16 Paragraph.

17 34. Compliance With Other Laws. All actions required pursuant
18 to this Order shall be performed in accordance with all applicable
19 local, state, and federal laws and regulations except as provided in
20 CERCLA section 121(e) and 40 CFR section 300.415(i). In accordance
21 with 40 CFR section 300.415(i), all on-site actions required
22 pursuant to this Order shall, to the extent practicable, as
23 determined by EPA, considering the exigencies of the situation,
24 attain applicable or relevant and appropriate requirements (ARARs)
25 under federal environmental, state environmental, or facility siting
26 laws. (see "The Superfund Removal Procedure for Consideration of
27 ARARs for Removal Actions," OSWER Directive No. 9360.3-02, August
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1 1991). Respondent shall identify ARARs in the Work Plan, or
2 Respondent may within thirty (30) days after the effective date of
3 this Order submit a separate memorandum that identifies ARARs.

4 35. Emergency Response and Notification of Releases. If any
5 incident, or change in site conditions, during the activities
6 conducted pursuant to this Order causes or threatens to cause an
7 additional release of hazardous substances from the Site or an
8 endangerment to the public health, welfare, or the environment, the
9 Respondent shall immediately take all appropriate action to prevent,
10 abate or minimize such release, or endangerment caused or threatened
11 by the release. Respondent shall also immediately notify the OSC
12 or, in the event of his/her unavailability, shall notify the
13 Regional Duty Officer of the incident or site conditions. The OSC
14 can be reached by telephone at (208) 334-1475, or contacted through
15 the Idaho State Communications Center at (800) 623-8000 or (208)
16 327-7424.

17 36. In addition, in the event of an actual release of a
18 hazardous substance, Respondent shall immediately notify EPA's OSC
19 and the National Response Center at telephone number (800) 424-8802.
20 Respondent shall submit a written report to EPA within seven (7)
21 days after each release, setting forth the events that occurred and
22 the measures taken or to be taken to mitigate any release or
23 endangerment caused or threatened by the release and to prevent the
24 reoccurrence of such a release. This reporting requirement is in
25 addition to, not in lieu of, reporting under CERCLA section 103(c)
26 and section 304 of the Emergency Planning and Community Right-To-
27 Know Act of 1986, 42 U.S.C. sections 11001 et seq.

1 VI. AUTHORITY OF THE EPA ON-SCENE COORDINATOR

2 37. The OSC shall be responsible for overseeing the proper and
3 complete implementation of this Order. The OSC shall have the
4 authority vested in an OSC by the NCP, including the authority to
5 halt, conduct, or direct any work required by this Order, or to
6 direct any other response action undertaken by EPA or Respondent at
7 the Site. Absence of the OSC from the Site shall not be cause for
8 stoppage of work unless specifically directed by the OSC.

9 38. EPA and Respondent shall have the right to change their
10 designated OSC or Project Coordinator. EPA shall notify the
11 Respondent, and Respondent shall notify EPA seven (7) days before
12 such a change is made. Notification may initially be made orally,
13 but shall be followed promptly by written notice.

14 VII. REIMBURSEMENT OF COSTS

15 39. Respondent shall reimburse EPA for all response costs
16 incurred by the United States in overseeing Respondent's
17 implementation of the requirements of this Order. EPA shall submit
18 to Respondent on an annual basis a bill for all response costs
19 incurred by the United States with the respect to this Order. EPA's
20 Itemized Cost Summary certified by the EPA Region 10 Financial
21 Management Office shall serve as the basis for the payments.

22 40. Respondent shall, within forty-five (45) days of receipt of
23 the bill, remit a cashier's or certified check for the amount of
24 those costs made payable to the "Hazardous Substances Superfund," to
25 the U.S. EPA Superfund, P.O. Box 360903M, Pittsburgh, Pennsylvania
26 15251, and referencing the EPA Region and Site/Spill ID #10P1.
27 Respondent shall simultaneously transmit a copy of the check to EPA
28

1 Region 10 Docket Hearing Clerk (SO-155), 1200 6th Avenue, Seattle,
2 Washington 98101. Payments shall be designated as "Oversight Costs
3 - Blackbird Mine Site" and shall reference the payor's name and
4 address, the EPA Region and Site/Spill, and the docket number of
5 this Order.

6 41. Interest at the rate established under 107(a) of CERCLA
7 shall begin to accrue on the unpaid balance from the day after the
8 expiration of the forty-five (45) day period, notwithstanding any
9 dispute or an objection to any portion of the costs.

10 42. a. Respondent may dispute all or part of a bill submitted
11 under this Order, if Respondent determines that EPA has made an
12 accounting error, or if Respondent alleges that a cost item that is
13 included represents costs that are inconsistent with the NCP.

14 b. If any dispute over costs is resolved before payment is
15 due, the amount due will be adjusted as necessary. If the dispute
16 is not resolved before payment is due, Respondent shall pay the full
17 amount of the uncontested costs into the Hazardous Substances Trust
18 Fund as specified above on or before the due date. Within the same
19 time period, Respondent shall pay the full amount of the contested
20 costs into an interest-bearing escrow account. Respondent shall
21 simultaneously transmit a copy of both checks to the EPA OSC.
22 Respondent shall ensure that the United States receives the amount
23 upon which it prevailed from the escrow funds plus interest within
24 forty-five (45) days after the dispute is resolved.

25 VIII. DISPUTE RESOLUTION

26 43. The parties to this Order shall attempt to resolve,
27 expeditiously and informally, any disagreements concerning this
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1 Order.

2 44. If Respondent object(s) to any EPA action taken pursuant to
3 this Order, Respondent shall notify EPA in writing of its
4 objection(s) within fourteen (14) days of receipt of such
5 notification or action, unless the objection(s) has been informally
6 resolved.

7 45. EPA and Respondent shall have twenty-one (21) days from
8 EPA's receipt of the notification of objection to reach agreement.
9 If agreement is reached, it will be reduced to writing and will
10 become a fully enforceable part of this Order. If agreement cannot
11 be reached on any issue within this twenty-one day period, an EPA
12 management official at the Branch Chief level or higher, as
13 designated by EPA Region 10, will issue a written decision to the
14 Respondent. Respondent's obligations under this Order shall not be
15 tolled by submission of any objection for dispute resolution under
16 this section.

17 46. Following resolution of the dispute, as provided by this
18 section, Respondent shall fulfill the requirement that was the
19 subject of the dispute in accordance with the agreement reached or
20 with EPA's decision, whichever occurs. No EPA decision made
21 pursuant to this section shall constitute a final agency action
22 giving rise to judicial review.

23 IX. FORCE MAJEURE

24 47. Respondent agrees to perform all requirements under this
25 Order within the time limits established under this Order, unless
26 the performance is delayed by a force majeure. For purposes of this
27 Order, a force majeure is defined as any event arising from causes
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beyond the control of Respondent or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, that delays or prevents performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation. Force majeure does not include financial inability to complete the work or increased cost of performance.

48. Respondent shall notify EPA orally within 24 hours after the event, and in writing within three (3) days, after Respondent becomes or should have become aware of events which constitute a force majeure. Such notice shall: identify the event causing the delay or anticipated delay; estimate the anticipated length of delay, including necessary demobilization and re-mobilization; state the measures taken or to be taken to minimize the delay; and estimate the timetable for implementation of the measures. Respondent shall take all reasonable measures to avoid and minimize the delay. Failure to comply with the notice provision of this section shall waive any claim of force majeure by Respondent.

49. If EPA determines a delay is or was attributable to a force majeure, the time period for performance under this Order shall be extended as deemed necessary by EPA. Such an extension shall not alter Respondent's obligation to perform or complete other tasks required by the Order which are not directly affected by the force majeure.

X. STIPULATED AND STATUTORY PENALTIES

50. For each day, or portion thereof, that Respondent fails to fully perform any requirement of the Order in accordance with the schedule set forth, EPA may assess the Stipulated Penalties against

1 Respondent in accordance with this Section.

2 51. a. The following stipulated penalties shall be payable
3 per violation per day to the United States for any Major
4 Noncompliance that is identified in Subparagraph b:

5	<u>Penalty Per Violation</u> <u>Per Day</u>	<u>Period of Noncompliance</u>
6	\$2,500	1st through 7th day
7	\$5,000	8th through 14th day
	\$7,500	15th through 30th day
8	\$10,000	31st day and beyond

9 b. EPA may assess stipulated penalties listed in
10 Paragraph 51 for the following:

11 i. Failure to perform the work required under Statement
12 of Work or in a Work Plan approved by EPA pursuant to this Order;

13 ii. Failure to maintain emergency equipment at the
14 Blackbird Mine during the implementation of this Order;

15 iii. Failure to submit to EPA a Final Report as required
16 by Paragraph 28.f; and

17 iv. Failure to properly monitor and maintain the surface
18 diversion and other aspects of the response action at the West Fork
19 tailings impoundment structure that are implemented under this
20 Order, as approved by EPA.

21 52. The following stipulated penalties shall be payable per
22 violation per day to the United States for failure to submit timely
23 or adequate reports or other written documents, or to otherwise
24 comply with this Order not covered by Paragraph 51:

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<u>Penalty Per Violation</u> <u>Per Day</u>	<u>Period of Noncompliance</u>
\$1,000	1st through 7th day
\$2,000	8th through 14th day
\$3,000	15th through 30th day
\$5,000	31st day and beyond

53. All penalties shall begin to accrue on the day after the complete performance is due for violations involving failure to meet a deadline under this Order. For violations involving failure to otherwise comply with any other requirement of this Order, all penalties shall begin to accrue on the date the notice of the noncompliance pursuant to Paragraph 54.b. is received by Respondent. All penalties shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Order.

54. a. Following EPA's determination that Respondent has failed to meet a deadline under this Order, EPA may give Respondent written notification of the same and describe the noncompliance. EPA may send Respondent a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondent of a violation.

b. Following EPA's determination that Respondent has failed to comply with a requirement of this Order other than a failure to meet a deadline, EPA shall give Respondent written notice of the failure to comply with a requirement of this Order and describe the noncompliance. EPA may send the Respondent a written demand for the payment of the penalties. However, penalties shall begin to accrue

1 as provided in this and the preceding Paragraph regardless of
2 whether EPA has made a written demand of a penalty.

3 55. Upon written demand by EPA, payment shall be made and
4 interest shall accrue on late payments in accordance with section
5 VII in this Order (Reimbursement of Costs).

6 56. Nothing herein shall prevent the simultaneous accrual of
7 separate penalties for separate violations of this Order. Penalties
8 are assessed per violation per day. Penalties for failure to meet
9 deadlines shall accrue in accordance with Paragraphs 52 and 53,
10 regardless of whether EPA has notified Respondent of a violation or
11 act of noncompliance. Respondent must perform the work even if
12 stipulated penalties are assessed.

13 57. Violation of any provision of this Order may subject
14 Respondent to civil penalties of up to twenty-five thousand dollars
15 (\$25,000) per violation per day, as provided in section 106(b)(1) of
16 CERCLA, 42 U.S.C. section 9606(b)(1). Respondent may also be
17 subject to punitive damages in an amount up to three times the
18 amount of any cost incurred by the United States as a result of such
19 violation, as provided in section 107(c)(3) of CERCLA, 42 U.S.C.
20 section 9607(c)(3). Should Respondent violate this Order or any
21 portion hereof, EPA may carry out the required actions unilaterally,
22 pursuant to section 104 of CERCLA, 42 U.S.C. section 9604, and/or
23 may seek judicial enforcement of this Order pursuant to section 106
24 of CERCLA, 42 U.S.C. section 9606.

25 58. a. If Respondent fails to pay stipulated penalties when due,
26 the United States may institute proceedings to collect the
27 penalties, as well as interest. Respondent shall pay interest on
28

1 the unpaid balance, which shall begin to accrue on the date of
2 demand made pursuant to Paragraph 54 at the rate established
3 pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607.

4 b. The stipulated penalties established in this Order shall
5 be the exclusive mechanism for the assessment and collection of
6 penalties for noncompliance with the provisions subject to
7 stipulated penalties, unless EPA elects, in lieu of demanding such
8 stipulated penalties, to seek civil penalties under CERCLA.

9 XI. RESERVATION OF RIGHTS

10 59. Nothing herein shall limit the power and authority of EPA or
11 the United States to take, direct, or order all actions necessary to
12 protect public health, welfare, or the environment or to prevent,
13 abate, or minimize an actual or threatened release of hazardous
14 substances, pollutants or contaminants, or hazardous or solid waste
15 on, at, or from the Site. Further, nothing herein shall prevent EPA
16 from seeking legal or equitable relief to enforce the terms of this
17 Order, from taking other legal or equitable action as it deems
18 appropriate and necessary, or from requiring Respondent in the
19 future to perform additional activities pursuant to CERCLA or any
20 other applicable law.

21 XII. OTHER CLAIMS

22 60. By issuance of this Order, the United States and EPA assume
23 no liability for injuries or damages to persons or property
24 resulting from any acts or omissions of Respondent. The United
25 States or EPA shall not be deemed a party to any contract entered
26 into by the Respondent or its directors, officers, employees,
27 agents, successors, representatives, assigns, contractors, or
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1 consultants in carrying out activities pursuant to this Order.

2 61. Except as expressly provided in section XIII (Covenant Not
3 To Sue section), nothing in this Order constitutes a satisfaction of
4 or release from any claim or cause of action against the Respondent
5 or any person not a party to this Order, for any liability such
6 person may have under CERCLA, other statutes, or the common law,
7 including but not limited to any claims of the United States for
8 costs, damages and interest under section 106(a) and 107(a) of
9 CERCLA, 42 U.S.C. § 9606(a) and 9607(a), and those claims made by
10 the United States in United States of America v. Blackbird Mining
11 Company Limited Partnership, et al., Case No. CV 93-235-E-HLR (D.
12 Idaho).

13 62. This Order does not constitute a preauthorization of funds
14 under section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2). The
15 Respondent waives any claim to payment under sections 106(b), 111,
16 and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611 and 9612, against the
17 United States or the Hazardous Substances Superfund arising out of
18 any activity performed under this Order. Respondent reserves all
19 claims it may have against the United States in the litigation
20 before the United States District Court for the District of Idaho
21 State of Idaho, et al. v. M.A. Hanna Company, et al., Civ. No. 83-
22 4179 (D. Idaho), or United States of America v. Blackbird Mining
23 Company Limited Partnership, et al., Case No. CV 93-235-E-HLR (D.
24 Idaho).

25 63. No action or decision by EPA pursuant to this Order shall
26 give rise to any right to judicial review except as set forth in
27 section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XIII. COVENANT NOT TO SUE

64. Upon issuance of the EPA notice referred to in section XVIII, EPA covenants not to sue Respondent for judicial imposition of damages or civil penalties for any failure to perform obligations agreed to in this Order except for continuing obligations required under this Order and as otherwise reserved herein.

65. Upon payment of the costs incurred by EPA in overseeing Respondent's implementation of the requirements of this Order, EPA covenants not to sue or to take administrative action against Respondent under section 107(a) of CERCLA for recovery of such oversight costs expended in connection with this Order that are reimbursed under this Order.

66. Subject to the agreements and reservations specified in Paragraphs 62 and 69 and as otherwise reserved herein, Respondent covenants not to sue and agrees not to assert any claims or causes of action against EPA arising out of response activities under this Order.

XIV. CONTRIBUTION

67. With regard to claims for contribution against Respondent for matters addressed in this Order, the Parties hereto agree that Respondent is entitled to such protection from contribution actions or claims to the extent provided by section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2).

68. Nothing in this Order precludes Respondent from asserting any claims, causes of action or demands against any persons not parties to this Order for indemnification, contribution, or cost recovery.

XV. INDEMNIFICATION

69. Respondent agrees to indemnify, save and hold harmless EPA, its officials, agents, contractors, and employees from any and all claims or causes of action arising from, or on account of, acts or omissions of Respondent, its officers, its heirs, directors, officers, employees, agents, contractors, subcontractors, receivers, trustees, successors or assigns, in carrying out activities pursuant to this Order. The indemnification agreement in this Paragraph does not apply to any claims it may have against the United States in the litigation before the United States District Court for the District of Idaho State of Idaho, et al. v. M.A. Hanna Company, et al., Civ. No. 83-4179 (D. Idaho), or United States of America v. Blackbird Mining Company Limited Partnership, et al., Case No. CV 93-235-E-HLR (D. Idaho).

XVI. INSURANCE

70. At least seven (7) days prior to commencing any on-site work under this Order, Respondent shall secure, and shall maintain for the duration of this Order, comprehensive general liability insurance and automobile insurance with limits of five (5) million dollars, combined single limit. Within the same time period, Respondent shall provide EPA with certificates of such insurance. If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XVII. MODIFICATIONS

71. Modifications to any plan or schedule or the Statement of Work may be made in writing by the OSC or at the OSC's oral direction. If the OSC makes an oral modification, it will be memorialized in writing within seven (7) days; provided, however, that the effective date of the modification shall be the date of the OSC's oral direction. Any other requirements of the Order may be modified in writing by mutual agreement of the parties.

72. If Respondent seeks permission to deviate from any approved Work Plan or schedule or the Statement of Work, Respondent's Project Coordinator shall submit a written request to EPA for approval outlining the proposed Work Plan modification and its basis.

73. No informal advice, guidance, suggestion, or comment by EPA regarding reports, plans, specifications, schedules, or any other writing submitted by the Respondent shall relieve Respondent of its obligation(s) to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified.

74. If EPA determines that additional response actions for work that is consistent with the work elements set forth in Paragraph 27 and the SOW but not included in an approved plan are necessary to meet the objectives of Paragraph 27 and the Statement of Work or this Order, EPA will notify Respondent of that determination. Unless otherwise stated by EPA, within thirty days of receipt of notice from EPA that such additional response activities are necessary to protect public health, welfare, or the environment, Respondent shall submit for approval by EPA a Work Plan for the

1 additional response activities. The plan shall conform to the
2 applicable requirements of sections V and VI of this Order. Upon
3 EPA' approval of the Work Plan pursuant to Section V (Work Plan and
4 Implementation), Respondent shall implement the plan for additional
5 response activities in accordance with the provisions and schedule
6 contained therein. This section does not alter or diminish the
7 OSC's authority to make oral modifications to any plan or schedule.

8 XVIII. NOTICE OF COMPLETION

9 75. When EPA determines, after EPA's review of the Final Report,
10 that all work has been fully performed in accordance with this
11 Order, and that all goals and objectives of this Order and the
12 Statement of Work have been satisfied, with the exception of any
13 continuing obligations required by this Order, including all
14 requirements (monitoring, O&M), EPA will provide notice to
15 Respondent. If EPA determines that any removal activities have not
16 been completed in accordance with this Order, EPA will notify
17 Respondent, provide a list of the deficiencies, and require that
18 Respondent to modify the Work Plan to correct such deficiencies.
19 Respondent shall implement the modified and approved Work Plan and
20 shall submit a modified Final Report in accordance with the EPA
21 notice. Failure by Respondent to implement the approved modified
22 Work Plan shall be a violation of this Order.

23 XIX. SEVERABILITY

24 76. If a court issues an order that invalidates any provision of
25 this Order or finds that Respondent has sufficient cause not to
26 comply with one or more provisions of this Order, Respondent shall
27 remain bound to comply with all provisions of this Order not
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1 invalidated or determined to be subject to a sufficient cause
2 defense by the court's order.

3 XX. EFFECTIVE DATE

4 77. The effective date of this Order shall be the date it is
5 signed by EPA.

6 It is so ORDERED and Agreed this SIXTH day of August,
7 1993.

8
9 BY: James M. Everts DATE: Aug. 6, 1993
10 James M. Everts, Chief
11 Superfund Response and Investigations Branch
Region 10
U.S. Environmental Protection Agency

1 The undersigned representative(s) of Respondent certifies that it is
2 fully authorized to enter into the terms and conditions of this
3 Order and to bind the party it represents to this document.

4 Agreed this 28th day of July, 1993.

5 NORANDA MINING INC.

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7 By B.H. Grose B.H. Grose

8 Title President, Noranda Mining Inc.
9 President, Noranda Mining Inc.

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APPENDIX A

STATEMENT OF WORK

EMERGENCY REMOVAL ACTION FOR
TAILINGS IMPOUNDMENT SURFACE DIVERSION AT
WEST FORK OF BLACKBIRD CREEK

[Includes Drawing No. 1253.100 (Rev. F), 1253.200 (Rev. F),
1253.300 (Rev. D), and 1253.400 (Rev. B)]

NORANDA MINING, INC.

BLACKBIRD MINE

WEST FORK CREEK DIVERSION

1993 CONSTRUCTION WORK DESCRIPTION

1.0 INTRODUCTION

Noranda Mining Inc. (NMI), Salmon, Idaho, had contracted with Knight Piésold and Co. (KP), Denver, Colorado, to investigate and design an alternative diversion for West Fork Creek at the historic Blackbird Mine tailing storage facility (TSF).

The Blackbird copper and cobalt mining property is located approximately 45 miles southwest of the town of Salmon, Idaho, in the Salmon National Forest area, within the Blackbird Creek drainage. The TSF where the diversion will be constructed is a cross valley impoundment in West Fork Creek, near its confluence with Blackbird Creek, about 3 miles south of the mine site.

West Fork Creek is currently being diverted underneath the TSF by an approximately 40-year-old, 42-inch-diameter culvert. The new diversion will be in the form of a channel excavated over the top of the impoundment.

The channel will commence with a slurry, groundwater cutoff trench at its western extremity, and terminate in a spillway, excavated into bedrock at the eastern end, directing flows to Blackbird Creek.

2.0 GENERAL DESCRIPTION OF THE WORK

The diversion channel is the main design component of the Work. It consists generally of a 16 ft. bottom width trapezoidal-shaped channel with 2:1 side slopes. A low flow channel is located along the south side of the bottom width of the channel. The low flow channel is proposed as a half round, 4 ft. diameter RCP, bedded within the 2 ft. thick riprap erosion protection to the channel which overlies geofabric and a 2 ft. thick compacted clay liner. The longitudinal channel slope is 0.85%.

At the western extreme of the diversion channel, the low flow channel will be feathered into the natural creek using riprap embedded into concrete. From that point east, riprap will be placed in the natural flaring-open stream bed up to a groundwater cutoff to be constructed with a 4 ft. wide slurry trench. The slurry trench will extend vertically down to bedrock, sideways to where the flood level in the channel is projected to intercept bedrock on either side of the valley, and vertically up to the design flood level. The slurry is proposed as a cement/bentonite mix.

From the slurry trench east, the diversion channel will be excavated in fill up to where it intersects the existing TSF upstream embankment. The first (western) part of the fill area will be constructed of non-tailings material up to the small embankment adjacent to the existing culvert inlet. The remainder of the fill area will be constructed using tailings excavated for the channel from the existing TSF. All fill will be compacted in 12-in. raises as specified.

Channel riprap erosion protection is sized as $d_{50} = 11$ inches. The maximum rock size accordingly need only be of the order of 14 inches. The riprap closely follows placement of the clay liner and the geofabric overlying the clay.

The clay liner will be 2 ft. thick and compacted to 95% Proctor density. It is foreseen that clay in the channel bottom width will be placed and compacted, working with suitable compacting equipment in the bottom of the channel. From the bottom of the channel, clay on the lower

reaches of the side slopes will be placed using a backhoe. The remainder of the clay to the side slopes will be placed by backhoe, working from the top of the channel. Compaction on the side slopes will be achieved by suitable equipment from the top of the channel.

Riprap, geofabric and clay liner will be placed within the flood levels of the channel only, with allowance for 2 ft. of freeboard. Where the channel crosses over an expected talus slope near the eastern knoll, the talus will be over-excavated, suitable fill material imported and compacted to 90% Proctor density, before placing a PVC-bonded-to-geofabric liner. This PVC liner will be placed with pleats to allow for any differential settlement in the foundation materials at that channel portion. The normal clay, geofabric and riprap will overly the PVC liner. (See Drawing 1253.300, Detail B)

Immediately adjacent to the spillway, the channel will be formed with reinforced concrete and shotcrete, sloping steeply down to the spillway.

The spillway will be excavated into bedrock, generally expected about 30 ft. deep below grade. A cascading water spillway is designed requiring steps (as detailed) cut into the bedrock. Each step will effectively dissipate the kinetic energy of the water through impact until it reaches the bottom of the last step from where a chute, protected with riprap, will direct the flows to Blackbird Creek. Protection/improvements of the spillway include rock anchorages, reinforced concrete and shotcrete. (See Drawing 1253.400)

Regrading the top of the impoundment will also be executed during construction in order to use the expected surplus of excavated material and to ensure proper drainage of the TSF towards the channel. This recontouring effort will include lowering the elevation of the tailings by approximately 10 to 15 ft. near the main embankment and channel. The resulting difference in elevation of the channel and the top of the recontoured TSF will, therefore, be of the order of 15 ft.

Where the channel nears the spillway, excavation depths of the order of 15 ft. are expected. This will require reshaping (through excavation) of a small portion of the existing topography which forms a knoll immediately north of the channel. The extent of the excavation also allows for the existing access road to pass alongside the channel and to act as a buffer between the steep excavated slope and the channel. (See Drawing 1253.200, Section 3)

A new access road, for construction purposes, will be built in front (east) of the main embankment. This road will be constructed entirely in fill and wind down the face of the embankment and along the southern hill slopes until it reaches the elevation of the existing road in the Blackbird Creek floodplain. The road will have a maximum grade of 12.5%, will generally be 20 ft. wide, and have a suitable wearing course.

A temporary diversion of West Fork Creek from upstream of the slurry trench to the existing culvert inlet is required. This will be achieved by excavating a pond in West Fork Creek and piping the water from there to the culvert. The pond will be backfilled and will be covered by the riprap designed for the natural creek-to-channel transition.

It is expected that the recently installed monitoring wells will require vertical extension due to fill areas and/or regrading of the TSF. The extensions will be executed in strict conformance to the original well completion specifications.

Upon completion of the Work, the existing culvert inlet and two penstocks will be sealed in such a way as to allow access to the culvert in 1994 when final protection measures to the spillway will be undertaken and the culvert filled with drainage material.

3.0 MATERIAL SOURCES

Most of the materials required for construction will be gained from excavations for the Works. Tailings will only be used as fill upstream of the impoundment main embankment and within the limits of the Works. Riprap is anticipated to be locally available from the many talus slopes in the Blackbird Creek valley. Road fill is similarly anticipated to be borrowed from the talus slopes.

Clay liner material is available from the Forney site which is owned by NMI. The suitability of this source was well documented during the 1981 EIS reports.

4.0 SCHEDULING

The most critical requirement from a scheduling point of view is completion of all of the Works before Spring 1994 runoff. The following basic relationships between tasks are required:

- 4.1 **Temporary Diversion of West Fork Creek** will be established prior to placing fill upstream of the existing TSF. This diversion will be maintained effective for the duration of construction.
- 4.2 **Excavation at the Northeastern Knoll** will be an initial priority to ensure and maintain effective access to the top of the TSF.
- 4.3 **Excavation of the Spillway** will not commence prior to completing the knoll excavation (4.2) and the access road is effective.
- 4.4 **Construction of the Alternative Access Road** up the main embankment will be an early construction activity.
- 4.5 **Construction/Excavation of the Diversion Channel** is an expected critical path item which will require an early start. This will exclude a portion near the knoll which will be left out until all the other elements of the diversion are in place. This will ensure adequate access through the knoll area as well as prevent water collected in the channel during construction from discharging to Blackbird Creek.
- 4.6 **Minimum Lead Time Between Placing and Compacting the Clay Liner and Placing the Geofabric and Riprap** will be required to minimize exposure of the clay to direct sunlight and to minimize drying of the clay. The clay will be kept moist by sprinkling it regularly with water.

- 4.7 The Final Construction Activities will be to construct the knoll portion of the channel, including all its liner and other elements, followed by cessation of diverting West Fork Creek to the culvert and closing the culvert inlet and the temporary diversion pipe.

5.0 ANTICIPATED DIVERSION O&M

Closure of the existing culvert inlet during 1993 will be a temporary closure. Re-use of the culvert during 1994 may be briefly required. This is necessary to allow for any upgrading of the spillway against erosion in 1994, after one winter weathering cycle. An inspection of the culvert will be performed prior to the 1994 construction activities to determine its suitability for re-use.

Under normal conditions, it is expected that only the low flow channel will be continuously active. The design capacity of the low flow channel is of the order of 75 cfs. Any event causing an exceedance of 75 cfs will activate use of the general channel cross section.

Flows due to the 500-yr. design storm event will fill the channel within 2 ft. of the top limits of the riprap. At the western extreme of the channel, the natural creek slope is of the order of 6.5%. Where the diversion channel starts, the valley flares outward naturally which will reduce flow velocities rapidly, thus defeating the opportunity of forming a hydraulic jump to start subcritical flows in the channel.

At the spillway end of the channel, each step in the spillway is designed to effectively destroy the kinetic energy of the water by impact. Thus, as the water reaches the bottom of the last step, only the slope on the chute will cause flows to be directed towards Blackbird Creek.

Annual maintenance is expected to consist of monthly visual inspections, except during spring runoff or unusual storm events when two inspections per 24 hours will be conducted. Any significant debris or other obstructions detected will be removed at that time. Records will be kept noting debris, unusual weather conditions, condition of the riprap, inspection of the spillway in terms of function and erosion, if any.

This procedure will be maintained and re-evaluated annually and modified as is practical.